

## AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior versions, and listings of the claims in the application:

Claim 1-7. (Cancelled).

8. (Currently Amended) A pressure support system, generator comprising:  
a source of gas;  
a patient circuit; and  
a pressure generator coupled to the source of gas and the patient circuit, the  
pressure generator including:  
\_\_\_\_\_(a) a housing having a gas inlet and a gas outlet;  
\_\_\_\_\_(b) a motor;  
\_\_\_\_\_(c) a rotatable drive shaft driven by the motor; and  
\_\_\_\_\_(d) an impeller mounted on the drive shaft and disposed within the  
housing, the impeller comprising:  
\_\_\_\_\_(1) a hub attached to the drive shaft,  
\_\_\_\_\_(2) an impeller body attached to the hub extending radially from  
the hub to a perimeter of the impeller,  
\_\_\_\_\_(3) a plurality of impeller blades disposed on one face of the  
impeller body, each impeller blade extending from a leading end of the blade generally adjacent  
the hub toward a trailing end of the blade generally at the perimeter of the impeller, wherein the  
plurality of impeller blades decrease in height from the leading end to the trailing end, wherein  
an inlet area is defined between each pair of adjacent blades generally adjacent the hub, with  
each inlet area being defined as the area at the radius of the leading end of the adjacent blades  
bounded by a height of the leading end of the adjacent blades and the one face of the impeller  
body, and wherein an outlet area is defined between each pair of adjacent blades generally  
adjacent the perimeter of the impeller, with each outlet area being defined as the area at the

radius of the trailing end of the adjacent blades bounded by the height of the trailing end of the adjacent blades and the one face of the impeller body, wherein each inlet area is substantially equal to each corresponding outlet area for each pair of adjacent blades;

wherein the pressure generator receives gas from the source of gas and, based on a preselected pressure of between 10-65 cmH<sub>2</sub>O and responsive to a range of flow rates in the patient circuit from 10-150 l/min, outputs a flow of breathing gas having a pressure within a standard deviation of no more than 1.5 cmH<sub>2</sub>O of the preselected pressure without feedback control of the pressure generator based either or both of a pressure in the patient circuit or a flow rate in the patient circuit.

9. (Currently Amended) The pressure support system generator of claim 8, the impeller further comprising a plurality of partial blades disposed on the one face of the impeller body, wherein each partial blade is positioned between a respective pair of adjacent impeller blades and extends from a position radially outward of the inlet area defined between the adjacent impeller blades to the perimeter of the impeller, wherein each partial blade extends from a midpoint of the one face of the impeller body between the adjacent impeller blades to the perimeter of the impeller.

Claim 10. (Cancelled).

11. (Currently Amended) The pressure support system generator of claim 8, wherein the blades are backward curved blades.

12. (Currently Amended) The pressure support system generator of claim 8, wherein the hub includes a smooth outer surface curving radially outwardly toward the plurality of inlet areas.

13. (Currently Amended) The pressure support system generator of claim 8, wherein the housing outlet has an arithmetically increasing cross sectional area extending at least partially around the perimeter of the impeller.

14. (Currently Amended) The pressure support system generator of claim 8, wherein the housing follows the contour of the height of the blades.

15. (Currently Amended) The pressure support system generator of claim 8, wherein a radial area between adjacent blades, which is an area between adjacent blades at a radial position from the hub and that is bounded by the height of the adjacent blades at the radial position and the one face of the impeller body, is substantially the same over a length of the pair of adjacent blades.

Claims 16-23. (Cancelled).

24. (Currently Amended) A method of supplying a flow of gas to a patient circuit, comprising:

- (a) providing a source of gas;
- (b) ~~pressurizing the gas to a selected constant pressure in~~ providing a pressure generating system comprising:
  - (1) a housing having a gas inlet and a gas outlet,
  - (2) a motor,
  - (3) a rotatable drive shaft driven by the motor, and
  - (4) an impeller mounted on the drive shaft and disposed within the housing, the impeller comprising:
    - (i) a hub attached to the drive shaft,
    - (ii) an impeller body attached to the hub extending radially from the hub to a perimeter of the impeller,

(iii) a plurality of impeller blades disposed on one face of the impeller body, each impeller blade extending from a leading end of the blade generally adjacent the hub toward a trailing end of the blade generally at the perimeter of the impeller, wherein the plurality of impeller blades decrease in height from the leading end to the trailing end, wherein an inlet area is defined between each pair of adjacent blades generally adjacent the hub, with each inlet area being defined as the area at the radius of the leading end of the adjacent blades bounded by a height of the leading end of the adjacent blades and the one face of the impeller body, and wherein an outlet area is defined between each pair of adjacent blades generally adjacent the perimeter of the impeller, with each outlet area being defined as the area at the radius of the trailing end of the adjacent blades bounded by the height of the trailing end of the adjacent blades and the one face of the impeller body, wherein each inlet area is substantially equal to each corresponding outlet area for each pair of adjacent blades;

(iv) a plurality of partial blades disposed on the one face of the impeller body, wherein each partial blade is positioned between a respective pair of adjacent impeller blades and extends from a position radially outward of the inlet area defined between the adjacent impeller blades to the perimeter of the impeller; and

(v) a skirt extending around the perimeter of the impeller, the skirt extending downwardly from a second face of the impeller body opposite the one face of the impeller body;

(c) receiving gas from the source of gas in the pressure generating system and, based on a preselected pressure of between 10-65 cmH<sub>2</sub>O and responsive to a range of flow rates in the patient circuit from 10-150 l/min, outputting from the pressure generating system a flow of breathing gas having a pressure within a standard deviation of no more than 1.5 cmH<sub>2</sub>O of the preselected pressure without feedback control of the pressure generating system based on either or both of a pressure in the patient circuit or a flow rate in the patient circuit; and

(d) delivering the pressurized gas to the patient circuit, the patient circuit being an external location using a gas carrying conduit coupled to the gas outlet of the housing.

Claims 25-30. (Cancelled).

31. (Currently Amended) A method of supplying gas comprising:

- (a) providing a source of breathing gas;
- (b) providing a pressure generator comprising:

- (1) a motor,
  - (2) a rotatable drive shaft driven by the motor, and
  - (3) an impeller mounted on the drive shaft;

(c) providing a patient circuit;

(d) receiving gas from the source of breathing gas in the pressure generator and pressurizing gas from the source of breathing gas via the pressure generator such that the pressure generator will, based on a preselected pressure of between 10-65 cmH<sub>2</sub>O and responsive to a range of flow rates in the patient circuit from 10-150 l/min, outputting from the pressure generator a flow of breathing gas having a pressure within a standard deviation of no more than 1.5 cmH<sub>2</sub>O of the preselected pressure without feedback control of the pressure generator based on either or both of a pressure in the patient circuit or a flow rate in the patient circuit; and

(d) supplying the pressurized gas from the pressure generator to the patient through athepatient circuit.

Claim 32. (Cancelled).

33. (Previously Presented) The method of claim 31, wherein pressuring the gas includes outputting the flow of breathing gas such, at a constant rotational speed, as the output flow increases, the pressure of the flow of breathing is greater than the preselected pressure over at least a portion of the range of flows from 10-150 l/min.

34. (New) The method of claim 24, the impeller further comprising a plurality of partial blades disposed on the one face of the impeller body, wherein each partial blade is positioned between a respective pair of adjacent impeller blades and extends from a position radially outward of the inlet area defined between the adjacent impeller blades to the perimeter of the impeller.

35. (New) The method of claim 24, the impeller further comprising a skirt extending around the perimeter of the impeller, the skirt extending downwardly from a second face of the impeller body opposite the one face of the impeller body.